

Listing of Claims

The listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A multi-modal medical device system that provides treatment therapy for a nervous system disorder, comprising:

an implantable component configured for multi-modal operation, the implantable component configured to provide the treatment therapy in a first treatment therapy mode, wherein the first treatment therapy mode corresponds to an open-loop control mode;

a first external component configured ~~to receive data from the implantable component~~ and to provide an instruction indication to the implantable component ~~to of the presence of the first external component, and to provide at least one feature to the implantable component~~ operate in a second treatment therapy mode in accordance with the data, wherein the second treatment therapy mode corresponds to a closed-loop control mode; and

a first communications channel configured to optionally couple the implantable component and the external component, wherein, in operation, the data is transported over the communications channel,

wherein the implantable component configured so that if it does not receive a signal from the first external component within a first period of time, the implantable component continues to support the at least one feature provided by the first external component until a second period of time when the implantable component detects that the first external component is no longer available, the implantable component is configured to operate in the open-loop control mode when the external component is decoupled from the communications channel it detects that the first external component is no longer available and to automatically switch to the a second treatment therapy mode closed-loop control mode when the first external component is re-coupled to the implantable component through the communications channel, the second treatment therapy mode corresponding to a closed-loop control mode, wherein, in operation, the closed-loop control mode is responsive to the data being transported over the communications channel.

2. (Previously Presented) The multi-modal medical device system of claim 1, further comprising:

a programmer configured to directly communicate with the implantable component through the external component over the first communications channel in order to support a third treatment therapy mode.

3. (Previously Presented) The multi-modal medical device system of claim 1, further comprising:

a programmer configured to indirectly communicate with the implantable component through the first external component in order to support a third treatment therapy mode.

4. (Original) The multi-modal medical device system of claim 1, wherein the first communications channel comprises a telemetry channel.

5. (Previously Presented) The multi-modal medical device system of claim 4, further comprising:

a relaying module configured to enhance a signal on the telemetry channel from the first external component to the implantable component.

6. (Previously Presented) The multi-modal medical device system of claim 1, wherein the implantable device comprises a memory configured to store the data that is transported over the first communications channel.

7. (Currently Amended) The multi-modal medical device system of claim 1, wherein the first external component comprises an interface configured to couple to a triggering device and wherein, in operation, an activation of the triggering device is indicative of a relevant event ~~that affects at least one of the treatment therapy modes.~~

8. (Currently Amended) The multi-modal medical device system of claim 1, wherein the first external component comprises an interface configured to couple to a second communications channel, and wherein the first external component is configured to send messaging over the second communications channel ~~that is indicative of at least a portion of the data.~~

9. (Previously Presented) The multi-modal medical device system of claim 1, wherein the first external component comprises:

a module that supports another treatment therapy mode when the first external component is coupled to the implantable component through the first communications channel.

10. (Previously Presented) The multi-modal medical device system of claim 1, further comprising another external component that is coupled to the first external component, wherein the other external component comprises a module that supports another treatment therapy mode when the other external component is coupled to the first external component and when the first external component is coupled to the implantable component.

11. (Currently Amended) A multi-modal medical device system that provides treatment therapy for a nervous system disorder, comprising:

an implantable component configured for multi-modal operation, that applies the treatment therapy and that provides a first treatment therapy mode, wherein the first treatment therapy mode is an open-loop control mode;

~~an external component configured to receive data from the implantable component, the external component comprising a first module that provides an instruction indication to the implantable component of the presence of the external component, and to provide at least one feature to the implantable component to operate in a second treatment therapy mode when the external component is coupled to the implantable component, wherein the second treatment therapy mode is a closed-loop control mode; and~~

a communications channel configured to couple the implantable component with the external component, wherein the data, in operation, being data is transported over the communications channel,

wherein the implantable component configured so that if it does not receive a signal from the external component within a first period of time, the implantable component continues to support the at least one feature provided by the external component until a second period of time when the implantable component detects that the external component is no longer available, the implantable component is configured to operate in the open-loop control mode when the external component is decoupled from the communications channel it detects that the external component

is no longer available and to automatically switch to a second treatment therapy mode ~~the closed-loop control mode~~ when the external component is re-coupled to the implantable component through the communications channel, the second treatment therapy mode corresponding to a closed-loop control mode, wherein, in operation, the closed-loop control mode is responsive to the data being transported over the communications channel.

12. (Previously Presented) The multi-modal medical device system of claim 11, wherein the external component further comprises an additional module that supports an additional treatment therapy mode when the external component is coupled to the implantable component, and wherein different treatment therapy mode is either the another treatment therapy mode supported by the first module or the additional treatment therapy mode supported by the additional module.

13. (Currently Amended) A method for a treatment of a nervous system disorder with a medical device system with a medical device system, comprising:

- (a) applying a treatment therapy to a patient for the nervous system disorder;
- (b) supporting a first treatment therapy mode with an implantable component configured for multi-modal operation;
- (c) ~~exchanging data from the implantable component to an external component~~ coupling the implantable component and an external component through a communications channel and providing at least one feature to the implantable component from the external component through the communications channel; and
- (d) if the implantable component does not receive a signal from the external component within a first period of time, the implantable component continues to support the at least one feature provided by the external component until a second period of time when the implantable component detects that the external component is no longer available, and if the external component and the implantable component are re-coupled through the communications channel, automatically switching to a second treatment therapy mode ~~provided by the external component in accordance with the data; and~~
- (e) ~~if the external component and the implantable component are decoupled, operating the medical device system with the first treatment therapy mode,~~

~~wherein the first treatment therapy mode corresponds to an open-loop treatment therapy and the second treatment therapy mode corresponds to a closed-loop treatment therapy.~~

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) The method of claim 13, wherein the data comprises neurological data, wherein the first treatment therapy mode ~~corresponds~~ includes a basic loop recording capability, and wherein the second treatment therapy mode ~~corresponds to~~ includes an enhanced loop recording capability.

17. (Currently Amended) The method of claim 16, ~~wherein (b) comprises~~ comprising storing the neurological data by the implantable component, and ~~wherein (d) comprises~~ retrieving the neurological data from the implantable component and storing the neurological data by the external component.

18. (Currently Amended) The method of claim 16, ~~wherein (b) comprises~~ comprising storing the neurological data by the implantable component, and ~~wherein (d) comprises~~ retrieving the neurological data from the implantable component, and sending the neurological data to an external site ~~by~~ via the external component.

19. (Currently Amended) The method of claim 18, ~~wherein (d) further comprises:~~ comprising communicating with a health care professional about the neurological data.

20. (Original) The method of claim 19, wherein the data further comprises location information, the location information being indicative of a location of the patient.

21. (Previously Presented) The method of claim 13, further comprising determining if the implantable component and the external component are decoupled.

22. (Currently Amended) The method of claim 21, comprising ~~wherein (e) comprises:~~

(i) monitoring whether communications with the external component is maintained;

(ii) if the communications has been disrupted for a predetermined time interval, presuming that the external component is decoupled.

23. (Currently Amended) The method of claim 13, further comprising, if the external component and the implantable component are coupled, simultaneously supporting a third treatment therapy mode and the second treatment therapy mode ~~with the external component in accordance with the data.~~

24. (Original) The method of claim 13, wherein the medical device system comprises a hybrid system.

25. (Original) The method of claim 13, wherein the medical device system comprises an external system.

26. (Original) The method of claim 13, wherein the nervous system disorder is selected from the group consisting of a disorder of a central nervous system, a disorder of a peripheral nervous system, a mental health disorder, and a psychiatric disorder.

27. (Original) The method of claim 26, wherein the nervous system disorder is selected from the group consisting of epilepsy, Parkinson's disease, essential tremor, dystonia, multiple sclerosis (MS), anxiety, a mood disorder, a sleep disorder, obesity, and anorexia.

28. (Original) The method of claim 13, wherein the treatment therapy is selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, and brain temperature control.

29. (Original) The method of claim 13, wherein the treatment therapy is provided to a location of a body selected from the group consisting of a brain, a vagal nerve, a spinal cord, and a peripheral nerve.

30. (Previously Presented) The method of claim 13, wherein the first treatment therapy mode corresponds to an open-loop treatment therapy and wherein the second treatment therapy mode corresponds to an incremental treatment therapy.

31. (Previously Presented) The method of claim 30, wherein the data comprises neurological data, the method further comprising:

monitoring the neurological data; and

triggering a delivery of the incremental treatment therapy in response to the monitored neurological data.

32. (Original) The method of claim 30, wherein the incremental treatment therapy comprises an application of a pharmaceutical agent.

33 (Original) The method of claim 32, wherein the incremental treatment therapy further comprises an application of electrical stimulation.

34. (Previously Presented) The method of claim 13, wherein the data comprises neurological data and wherein the second treatment therapy mode supports an alarm in response to the neurological data, the neurological data being indicative of an impending medical condition.

35. (Previously Presented) The method of claim 13, wherein the second treatment therapy mode enhances a functionality, the functionality being supported by the first treatment therapy mode.

36. (Currently Amended) The method of claim 13, wherein the second treatment therapy mode supports ~~another~~ other functionality than a first functionality that is supported by the first treatment therapy mode.

37. (Currently Amended) A method for a treatment of a nervous system disorder with a medical device system, comprising:

(a) applying a treatment therapy to a patient for the nervous system disorder;

(b) supporting an open-loop mode of ~~the~~ treatment therapy with an implantable component configured for multi-modal operation;

(c) coupling the implantable component and an external component through a communications channel and providing at least one feature to the implantable component from the external component through the communications channel;

(d) exchanging neurological data between the implantable component and an external component;

(e)(d) if the implantable component does not receive a signal from the external component within a first period of time, the implantable component continues to support the at least one feature provided by the external component until a second period of time when the implantable component detects that the external component is no longer available and switches to the open-loop mode of treatment therapy, and if the external component and the implantable component are re-coupled, automatically switching the medical device system to a closed-loop mode, the closed-loop mode supported by the external component in accordance with the neurological data; and

~~(e) if the external component and the implantable component are decoupled, automatically switching the medical device system to the open-loop mode of the treatment therapy.~~

38. (Cancelled)

39. (Currently Amended) A method for treatment of a nervous system disorder with a medical device system, comprising:

(a) providing an open-loop treatment therapy with an implantable component configured for at least two modes of operation, the open-loop treatment therapy being one of the at least two modes of operation;

(b) periodically sending a signal from the implantable component to an external component;

(c) in response to receiving a reply from the external component within a predetermined period, providing neurological data from the implantable component to the external component over a communication channel, the neurological data being responsive to the open-loop treatment therapy; and

(d) in response to providing the neurological data to the external component, receiving an instruction from the external component by the implantable component for

providing closed-loop treatment therapy over the communication channel, the closed-loop treatment therapy being adjusted in response to the neurological data being provided over the communication channel, the closed-loop treatment therapy being another of the at least two modes of operation; and

(e) if the implantable component does not receive a signal from the external component within a first period of time, the implantable component continues to support at least one feature provided by the external component until a second period of time when the implantable component detects that the external component is no longer available and switches to the open-loop treatment therapy, and if the external component and the implantable component are re-coupled, automatically switching the medical device system to the closed-loop treatment therapy, the closed-loop treatment therapy supported by the external component in accordance with the neurological data.

40. (Currently Amended) A multi-modal medical device system that provides treatment therapy for a nervous system disorder, comprising:

an implantable component configured for multi-modal operation, the implantable component configured to apply the treatment therapy in either an open-loop control mode or a closed-loop control mode;

an external component configured to send data to the implantable component, receive data from the implantable component, and to provide an instruction to the implantable component to operate in either the open-loop control mode or the closed-loop control mode; and

at least one communication channel configured to optionally couple the implantable component and the external component, wherein, in operation, the data is transported over the at least one communication channel,

~~wherein~~ the implantable component is configured so that if it does not receive a signal from the external component within a first period of time, the implantable component continues to support at least one feature provided by the external component until a second period of time when the implantable component detects that the external component is no longer available, the implantable component configured to operate in the open-loop control mode when it detects that the external component is no longer available ~~the external component is decoupled from the at~~

~~least one communication channel~~ and to automatically switch to the closed-loop control mode when the external component is re-coupled to the implantable component through the at least one communication channel, wherein, in operation, the closed-loop control mode is responsive to the data being transported over the at least one communication channel.

41. (New) The multi-modal device system of claim 1, wherein the first external component is configured to receive data from the implantable component and transmit data to the implantable component.

42. (New) The multi-modal device system of claim 1, wherein the first external component is configured to receive data from the implantable component.

43. (New) The multi-modal device system of claim 1, wherein the implantable component is configured to automatically switch to a closed loop therapy mode when the first external component resumes delivery of a signal via the communications channel.

44. (New) The method of claim 13 comprising exchanging data between the implantable component and the external component.

45. (New) The method of claim 13, wherein the first treatment therapy mode corresponds to an open-loop treatment therapy mode.

46. (New) The method of claim 13, wherein the second treatment therapy mode corresponds to a closed-loop treatment therapy mode.

47. (New) The method of claim 13, wherein the data comprises instructions for basic loop recording capability.

48. (New) The method of claim 13, wherein the data comprises instructions for enhanced loop recording capability.

49. (New) The method of claim 13, wherein the first treatment therapy mode comprises therapy selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, brain temperature control, and a sensory warning.

50. (New) The method of claim 13, wherein the second treatment therapy mode comprises therapy selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, brain temperature control, and a sensory warning.

51. (New) The method of claim 13, wherein the first treatment therapy mode comprises therapy selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, brain temperature control, and a sensory warning, and the second treatment therapy mode comprises therapy selected from the group consisting of electrical stimulation, magnetic stimulation, drug infusion, brain temperature control, and a sensory warning.